Proceedings Report

Protection of Intellectual Property for Grassroots Innovation as Part of the Innovation for Inclusive Development (IID) Seminar Series

science & innovation
Department:
Science and Innovation
REPUBLIC OF SOUTH AFRICA

ASSAf
ACADEMY OF SCIENCE OF SOUTH AFRICA

August 2019

ISBN 978-1-928496-18-2

DOI http://dx.doi.org/10.17159/assaf.2019/0053

Cite:
Academy of Science of South Africa (ASSAf), (2019*)*. Protection of Intellectual Property for Grassroots Innovation. doi: 10.17159/assaf.2019/0053

Published by:
Academy of Science of South Africa (ASSAf)
PO Box 72135, Lynnwood Ridge, Pretoria, South Africa, 0040
Tel: +27 12 349 6600 • Fax: +27 86 576 9520
E-mail: admin@assaf.org.za

The Academy of Science of South Africa (ASSAf) was inaugurated in May 1996. It was formed in response to the need for an Academy of Science consonant with the dawn of democracy in South Africa: activist in its mission of using science and scholarship for the benefit of society, with a mandate encompassing all scholarly disciplines that use an open-minded and evidence-based approach to build knowledge. ASSAf thus, adopted in its name the term 'science' in the singular as reflecting a common way of enquiring rather than an aggregation of different disciplines. Its Members are elected based on a combination of two principal criteria, academic excellence and significant contributions to society.

The Parliament of South Africa passed the Academy of Science of South Africa Act *(No 67 of 2001)*, which came into force on 15 May 2002. This made ASSAf the only academy of science in South Africa officially recognised by government and representing the country in the international community of science academies and elsewhere.

This report reflects the proceedings of the Protection of Intellectual Property for Grassroots Innovation workshop held as Part of the Innovation for Inclusive Development (IID) Seminar Series on 21 March 2019 at the Protea Hotel Fire and Ice, Menlyn, Pretoria, South Africa. Views expressed are those of the individuals and not necessarily those of the Academy nor a consensus view of the Academy based on an in-depth evidence-based study.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

This proceedings report is a product of the Academy of Science of South Africa (ASSAf) in partnership with the Department of Science and Innovation (DSI), as well as Technology Innovation Agency (TIA) on the Innovation for Inclusive Development (IID) seminars. The IID learning interventions align with one of DSI's strategic objectives, namely, to use "knowledge, evidence and learning to inform and influence how science and technology may be used to achieve inclusive development". The purpose is to demonstrate how innovative technology solutions may be used to improve the capacity of the State to deliver and improve access to basic services, and thereby advance local economic development.

The seminar entitled Protection of Intellectual Property for Grassroots Innovation was centred around the Grassroots Innovation Programme (GIP), which is designed to identify and support innovators and inventors who do not have a formal education or access to formal innovation facilities. The GIP intents to provide grassroots innovators with technical skills development, access to technical expertise and intellectual property (IP) protection, among other things. The main aim of the seminar was to discuss the national IP systems and policies supporting grassroots innovation.

ASSAf acknowledges the DSI, TIA and all the speakers. The 70 participants from various sectors including the public and private sector, non-governmental organisation (NGOs), academia, media as well as students from universities and young aspiring innovators are greatly acknowledged individually and collectively.

The contributions of the ASSAf Liaison Programme, led by Mr Stanley Maphosa and the contact person for this project Dr Tebogo Mabotha's contributions throughout the project are hereby acknowledged and appreciated.

Prof Himla Soodyall
ASSAf Executive Officer

WELCOME AND INTRODUCTION

Mr Stanley Maphosa, Manager: International and National Liaison, Academy of Science of South Africa (ASSAf)

Mr Maphosa opened the meeting, welcomed everyone and allowed a round of introductions.

The Department of Science and Innovation (DSI) had renewed the partnership with ASSAf for the Innovation for Inclusive Development (IID) Seminar Series for a second year.

OVERVIEW OF THE INNOVATION FOR INCLUSIVE DEVELOPMENT SEMINAR SERIES

Ms Nonhlanhla Mkhize, Chief Director: Innovation for Inclusive Development, DSI

Ms Mkhize provided an overview of the IID seminars on behalf of Mr Imraan Patel (Deputy Director-General: Socio-economic Innovation Partnerships, DSI), who had sent his apologies.

The IID seminars provide an opportunity to converge and converse with those who are responsible for policy and practice. The seminars culminate in a report to the DSI. The discussions at the present seminar have implications for the DSI and the Department of Trade and Industry (the dti), where the function for grassroots innovation currently resides.

The White Paper on Science, Technology and Innovation commits South Africa to an inclusive and responsive National System of Innovation (NSI) that is able to support all kinds of innovation. For the first time, the White Paper takes a clear position on supporting grassroots innovation. The commitment to this support was the result of a number of engagements with stakeholders in the NSI. The IID seminars explore whether existing tools to support innovation are responsive to grassroots innovation.

India is partnering with South Africa in the grassroots innovation initiative. India has made considerable progress in acknowledging grassroots innovation. Ms Mkhize welcomed Mr Patel from the National Innovation Foundation in India.

The IID seminars are distinguished by drawing on the experience of actual projects and experiments of technology demonstration to identify lessons to be learnt. The DSI and its stakeholders reflect on what happens in their own environment to inform and influence policy and practice.

SESSION 1: INTELLECTUAL PROPERTY AND GRASS-ROOTS INNOVATION: NATIONAL AND INTERNATIONAL PERSPECTIVES

Overview of the state and impact of intellectual property rights on grass-roots innovation in India and globally: Honey Bee Network Approach (Mr Mahesh Patel, National Innovation Coordinator: Prototype and Product Development, National Innovation Foundation (NIF), India)

The 'honey bee' is a metaphor for certain ethical and professorial values. A honey bee does two things which development professionals usually do not do: (i) it collects pollen from the flowers in a way that flowers do not complain; and (ii) it connects flower- to-flower pollination.

The Honey Bee Network (HBN) operates according to four fundamental principles:

- The innovators should not become anonymous; their identity must be acknowledged and given due recognition, respect and reward.
- Whatever is learned from people must be shared back with them with value addition in their language and in a manner that they can understand.
- Following the principles of cross-pollination, engaging in people-to-people learning entails sharing ideas openly among the community.
- If any income, wealth or monetary incentive is generated through diffusion of innovation or any other activity related to it, a fair part must be shared back with the innovator/knowledge holder and insight provider.

The HBN is a network of like-minded individuals and organisations, including individual grassroots innovators, traditional knowledge holders, universities, non-governmental organisations (NGOs), non-governmental individuals (NGIs), research and development (R&D) institutes, scientists, farmers, students, teachers, journalists, women's groups and others who believe in the philosophy of sharing knowledge with grassroots innovators.

The activities of the HBN in the area of education, technology, institutions and culture involve:

- Support for innovation from and for grassroots innovations, comprising mainly self-triggered, self-conceived, self-designed technological innovations by unaided, untrained individuals from the informal sector.
- Incubation, which can either be *in situ* (at the innovator's place) or *ex situ* (at the NIF incubator, or at an engineering or R&D institution).

The HBN developed in the following way:

- 1989 – 1993: Prof Anil Kumar Gupta of the Indian Institute of Management, Ahmedabad founded the HBN as an informal network of like-minded people and organisations to support grassroots innovators after realising that the knowledge of grassroots innovators is exploited by the formal sector without giving due recognition and reward. The network had no formal structure or legal entity. In 1993, Prof Gupta started a formal organisation, the Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI). The society had a newsletter in local languages and worked to document grassroots innovators and traditional knowledge practices. During this period, Prof Gupta documented approximately 10 000 grassroots innovators and innovative practices. Many innovators complained to Prof Gupta that they were not being supported to advance.
- 1993 – 1997: In 1997, Prof Gupta organised the International Conference on Creativity at Grassroots, an outcome of which was the local level incubator known as the Gujarat Grassroots Innovations Augmentation Network (GIAN), the role of which is to connect innovation with investment and enterprise. Innovators received royalties through a licensing mechanism.
- 1997 – 2000: In 2000, the Department of Science and Technology in the government of India announced that a formal national body would be set up, the National Innovation Foundation, to work on grassroots innovation across the country.

In the area of intellectual property rights (IPR), the National Innovation Foundation is committed to:

- Stand by the IPRs of grassroots innovators and traditional knowledge holders.
- Incentivise public policy in defence of knowledge-rich and economically poor grassroots innovators and traditional knowledge holders.
- Conduct policy advocacy to strengthen the intellectual property (IP) protection system of the country.
- Promote people-to-people learning, but enforce IPR for industrial use through technology commons (i.e. hybridised open source for self-employed people, but licensing for commercial and industrial applications).

The concept of technology commons was explained in more detail:

- There are three basic kinds of knowledge, with junctions between them: (1) individual knowledge, innovations and practices, (2) community knowledge and (3) knowledge in the public domain:
  - individual knowledge is disseminated to the wider public with or without prior informed consent;

  - individual creativity is nurtured by the community and shared widely in society;
  - community knowledge is disseminated to the wider public with or without prior informed consent.
- There is a need to address the tensions in dealing with public, community and private proprietary knowledge around local community, public and privately managed knowledge resources.

The portfolio of incentives for innovation includes both material and non-material incentives, at either individual or collective level (Figure 1).

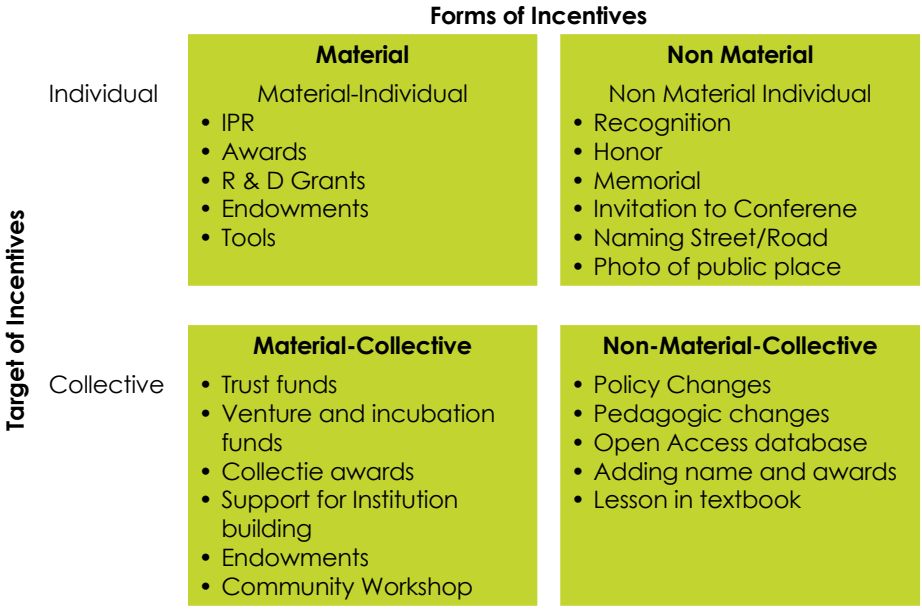

Figure 1: Forms of incentives for innovation

The NIF incubation value chain has the following steps:

- **Scouting and documentation of grassroots innovators and innovations:** Scouting for grassroots innovators is critical to the success of the HBN. Scouting is far more important than waiting for the innovators to turn up. Most countries that have tried to work for grassroots innovators have failed, mainly because of lack of scouting initiatives. Scouting involves sharing and communicating in local languages. HBN carries out scouting in the following ways: through students in summer vacation, Shodhyatra, idea competitions, Shodh Sankal, national campaign, exhibition, women's self-help groups, traditional food festivals, collaborators, media networks and the HBN Creativity

and Inclusive Innovation Awards. The Shodhyatra journey of exploration on foot is organised for a week to ten days twice a year during peak summer and winter. The purpose is to recognise, reward and honour knowledge holders; disseminate grassroots innovations and traditional knowledge; understand the creative process; identify innovators and unique knowledge holders; and reinforce their experimental ethic. So far, 43 Shodhyatras have been conducted all over India, and have covered most parts of the country. Approximately 295 000 ideas, innovations and traditional knowledge examples have been scouted from over 595 districts.

- **Validation:** More than 1 500 projects have been validated by the Indian Council of Medical Research, Council of Scientific and Industrial Research (CSIR), Indian Council of Agricultural Research, Indian Institute of Technology (IIT), South Asian University, Virtual University, National Institute of Technology (NIT), National Institute of Design and design firms.
- **Value addition:** Scouting alone is insufficient; ultimately the technologies have to be brought into the mainstream. To that end, it is essential to connect innovation with investment and enterprise development in order to convert grassroots innovation into commercially viable products and sustainable enterprises. In 1997, the GIAN was established to take forward the 'golden triangle' of creativity (the triangle comprising innovation, investment and enterprise development).
- **IPR protection:** HBN has done considerable work in IPR protection. Patent, design and plant variety protection have been sought in the name of innovators. More than 1 073 patent applications have been filed in India; of these, eight patent applications have been filed at the US Patent and Trademark Office (USPTO), and five have been granted. NIF has filed 21 design registrations, six trademark applications and 71 applications for registration of innovative plant varieties under the Protection of Plant Varieties and Farmers' Rights Act, 2001. The products for which HBN has sought IPR protection cover a vast spectrum, including engineering (mechanical machinery, electronic devices), plant varieties and herbal innovations relating to agriculture, veterinary and human health.
- **Diffusion:** Two hundred and thirty projects have been commercialised through the Micro Venture Innovation Fund; there have been 109 technology transfers under the NIF Incubation and Entrepreneurship Council (NIFientreC); and 81 technologies have been acquired under the Grassroots Technological Innovations Acquisition Fund, which obtains the rights to technologies from innovators after compensating them, with the purpose of disseminating and diffusing them at low or no cost for the larger benefit of society.

The current IPR concepts that evolved in Western society fail to protect a technology developed by a collective group, which is a normal practice in traditional or community knowledge-rich countries like India or South Africa. The lack of protection of IPR exposes the technology to exploitation by firms, corporations and other commercial bodies. In the evolving collaborative innovation model of technology commons, the group owns rights for every improvement and no single improvement may be licensed without the consent of the delegated group of representatives. Such a model leads to benefits for the end user in terms of cost reduction, customised solutions, multiple models to suit income levels and increased quality, while also meeting regional demand which might not have been possible had the technology remained with the lead innovator. Technology commons sets forth a framework for ethical replication of technologies (as opposed to unauthorised copying), overcoming the inability of the innovator to meet market demand and encouraging improvements or tailor-made adaptation through lateral learning by small entrepreneurs to scale up their business.

With the objective of becoming the provider of the world's largest open access innovation database, SRISTI collected and collated data available in the public domain to encourage and empower inventors, innovators, students, entrepreneurs and researchers and promote a culture of caring, sharing and daring to address unmet needs of society. The government of India also recognises the USPTO database. USPTO maintains a comprehensive open access database of all patents filed in the United States of America (USA). Once a patent is abandoned or expires, it becomes part of global commons. Anybody can use this knowledge to advance their research, experimentation, product development and in developing new innovations. The HBN Database of Agricultural Innovations was contributed by SRISTI *pro bono* for global and national open source use.

The work of the NIF has received various forms of recognition:

- GIAN was awarded the national award for Best Technology Business Incubator of the country for the year 2003 and shared the award with IIT Chennai given by the National Science and Technology Entrepreneurship Development Board, Government of India.
- The HBN received the Hermes Innovation Award from the European Institute for Creative Strategies and Innovation in 2012.
- The role of the NIF in knowledge creation was acknowledged in Task Force on Innovation – Report on Global Innovation Index: An Indian Perspective.

The following lessons have been learnt from the efforts to support grassroots innovation:

- The knowledge economy needs to be inclusive. Equal importance should be given to informal sectors to enable their mainstreaming.
- Most grassroots innovators are very generous in terms of sharing their knowledge, innovations and practices. Most of them would not put any restriction on sharing these with third parties. There are some who insist on apportioning a large share of the value gain for themselves, but these are the exception.
- The IPR protection framework has to match the needs of the innovator, as well as those who add value or disseminate it. The prior informed consent framework has to be applied so that the wishes of the innovators and the community are observed.
- Most of the licences have been given to small entrepreneurs who have paid a licence fee to the innovators apart from agreeing to pay royalties. They have done so even when they could easily have copied the technology with impunity.

Some additional considerations include:

- **How to tailor incentives for a combination of resource and knowledge of right regimes:** A judicious combination of the rights of innovators, community and scientist, who add value to the innovation needs to be worked out. Community knowledge is patented in the name of the individual as 'community representative'.
- **Whether traditional knowledge (TK) is a prior art:** The patent laws of many countries consider traditional knowledge to be prior art and therefore beyond any protection. The questions to consider in this regard are:
    - Is there not a case for modifying such provisions to discriminate between widely known and widely practised TK vis-à-vis widely known rarely practised, or rarely known rarely practised TK?
    - Should the norm of reasonable accessibility not be applied while evaluating the classification of a particular knowledge as prior art?
    - The rights of local communities need not be evaluated only from the legal framework but should be seen in the ethical framework of fairness.
    - A reasonably accessible knowledge in the public domain is a valid prior art.
    - Localised knowledge not shared in the public domain cannot yet be considered as prior art. This logic begins with all patents filed by HBN (SRISTI, GIAN and NIF). The Traditional Knowledge Digital Library opposed almost all our US applications, and in each case we won.

- **How difficulties in protecting the knowledge of the community can be overcome:** A proposal by SRISTI for establishment of the International Network on Sustainable Technologies, Applications and Registration, which aims to provide limited period protection to local communities as well as herbalists.

Overview of the intellectual property rights framework and its impact on innovation at grassroots level in South Africa (Prof Malebakeng Forere, Senior Lecturer: School of Law, University of the Witwatersrand (Wits))

Grassroots innovation relates to innovation happening at the bottom of the pyramid due to necessity, hardship and challenges. Grassroots innovators are individual innovators, who often undertake innovative efforts to solve localised problems, and generally work outside the realm of formal organisations like business firms. They generally address localised problems in the areas of health, food, water, sanitation and education. There are two types of grassroots innovators, namely (1) conventional grassroots innovators who adapt existing technologies and (2) traditional/indigenous innovators who use indigenous methods especially in health.

The main IP legislation relevant to innovation in South Africa are:
- Patents Act 1978
- Medicines & Related Substances Control Act
- Copyright Act 1978
- Intellectual Property Laws Amendment Act 2013
- Protection, Promotion, Development and Management of Indigenous Knowledge Bill.

Patents are relevant to inventions that solve societal problems and are pertinent especially in the fields of medicine, transportation and utilities. Patents are more rewarding than any family of IP law. The advantages of IP include preventing the theft of IP; giving the inventor the benefit of excluding others by creating a monopoly for 20 years; increasing profit margins; increasing market share in foreign countries; giving the inventor the opportunity to license the invention; and providing potential security for obtaining a loan.

There is a need to distinguish between grassroots innovation and mainstream IP and patents. The disadvantages of IP legislation for grassroots innovators include the burdensome application process; technical information related to the innovation being made publicly available; the possibility of a compulsory licence being issued against the innovator, in

which case third parties would be allowed to work on the patent (e.g. if a patent is not worked on at a commercial scale in South Africa after three years of patenting); the cost of the patent application and annual maintenance: the difficulties of getting marketing approval; and the need to protect a patent in other countries that pose the threat of competition.

The Patent Act promotes grassroots innovation, because an innovator with limited resources could license the innovation to a big multinational corporation or enter into a profit-sharing agreement. However, there are many challenges to grassroots innovators in using the Patent Act. The invention must be novel and inventive; many grassroots innovations are not able to meet these high standards of human ingenuity, and this requirement is not suitable for both types of grassroots innovators. The application process is challenging for grassroots innovators, involving the compilation of technical information and specifications for which attorneys from ivy league law firms are usually required. Overall, the Patent Act does not promote grassroots innovation.

The Copyright Act in relation to innovation is concerned mostly with computer programs and applications. The requirements are that the work must be original (i.e. of sufficient substance and not too commonplace) and must exist in material form (i.e. with respect to computer programs, this means that the source code must be written down). The Copyright Act promotes grassroots innovation in that there are no strict requirements for registration, and hence attorneys and associated fees are not required. However, proving originality or authorship seems to be difficult.

An overview of the usefulness of South African IP legislation for grassroots innovation reveals:

- The Patents Act, in particular, does not promote grassroots innovation.
- There are lessons to be learnt from the Designs Act, which protects both aesthetic and functional designs. The standards for demonstrating innovation are less stringent than with the Patents Act.
- There is a need to refine legislation in order to provide for utility models.
- Developed countries generally make provision for utility models, but developing countries (which are in dire need of technology and innovation) tend not to.

The conclusion is that utility models need to be adopted in order to promote innovation for inclusive development. Without utility models, it will not be possible for developing countries such as South Africa to innovate

for development. The advantages of utility models are that they permit existing technologies to be used to solve different problems (which may be novel but not necessarily inventive); registration is less complicated, costly and timely; there is no examination; and the terms of protection are seven to ten years.

Discussion: Questions/Comments

(Question) Dr Anitha Ramsuran (Technology Innovation Agency (TIA)):
The DSI set up a project management unit in TIA for the Grassroots Innovation Programme (GIP). If the grassroots innovator is taken to be an untrained and uninformed individual, then the support package needs to be structured differently and include a novelty opinion and technical feasibility as they have nowhere else to go for this information.

To Mahesh Patel: Only about 10% of the vast number of ideas have been validated. What is required for an idea to be validated?

(Question) Mr Qhubokuhle Dlamini (University of KwaZulu-Natal):
How can the protection of the knowledge of communities be ensured. Grassroots innovators do not have resources and most are not educated in Western classical thinking, so their knowledge risks being stolen.

(Question) Mr Rendani Mamphiswana (University of Johannesburg (UJ)):
How can a workable balance be struck between promotion of science and technology and protection of open innovation?

(Response) Mr Mahesh Patel (NIF, India):
The database contains three different kinds of innovation. Of the approximately 200 000 ideas in the database, 60% are from traditional knowledge and practices. In the case of herbal remedies, the innovators are initially reluctant to share information and it takes time to build trust to discover the extent of the novelty from the innovator. Various agencies are involved. In the case of herbal remedies, the main agency is the Indian Council of Medical Research. The process from knowledge, to formulation to clinical trials could take between three and five years. In the case of plants, plant trials are tested at different locations for periods of three years, after which the NIF receives a report on the extent of the novelty. For engineering innovations, the NIF has links with engineering laboratories, and results are obtained faster than with human health. The lengthy testing periods account for the fact that about 10% of innovative ideas have been validated.

(Response) Prof Malebakeng Forere (Wits):
The Intellectual Property Laws Amendment Act 2013 amended the Copyright Act, 1978 to provide for the establishment of a National Council in respect of indigenous knowledge, and a National Trust Fund for Indigenous Knowledge. Any traditional knowledge can be registered with the council, and once registered anyone who wants to use the traditional knowledge can obtain a licence to do so. The funds generated in this way are kept in a trust fund for the benefit of traditional people. Many problems are anticipated in implementing this legislation, because traditional knowledge is shared within a particular community, with the risk that the funds will only benefit a select few such as the chief. The Protection, Promotion, Development and Management of Indigenous Knowledge Bill is taking a long time to be enacted because of the many foreseen problems.

Open innovation works well for certain kinds of innovation such as computer programs and software, but not for other forms of invention. Developed countries that are known for innovation started slowly and progressed gradually. As a developing country, South Africa is at the stage of needing to copy and adapt, and is not served well by the international IPR protection treaties that the country has agreed to.

SESSION 2: PROTECTION OF INTELLECTUAL PROPERTY FOR GRASSROOTS INNOVATION: SOUTH AFRICAN SETTING

Round table discussion

Mr Ashley Bhugwandin (Technology Localisation and Implementation Unit, CSIR)

In 2014/15, the DSI asked the Technology Localisation and Implementation Unit (TLIU) to pilot the Grassroots Innovation Programme (GIP). Around this time, grassroots innovation was a relatively new topic in South Africa, and the partnership with India on grassroots innovation was being established. The TLIU started by looking at the kind of grassroots innovators found in South Africa, and discovered that they had innovative ideas but not at a commercial scale; they needed some form of protection; many did not have a formal education or access to facilities. Grassroots innovators in South Africa tend to be very protective of their environment because they are afraid that their ideas will be stolen by potential competitors.

Discussions began with the CSIR legal department about how to provide protection for grassroots innovators. The initial concern was to give them sufficient protection to allow them to discuss their ideas with potential developers. Grassroots innovators want to move fast and are not prepared for lengthy processes. There is a need for agility in dealing with grassroots innovators to address their issues of trust, and so that they can use their ideas without these being stolen. The possible protection mechanisms that could be provided need to be understood. Many grassroots innovators do not have a formal education and lack understanding of the law. In any dealings to support grassroots innovators, they need to have a level of comfort. There needs to be flexibility in the application of the law and processes.

An initial database of 150 ideas was compiled, but this has grown to thousands. A large percentage of the South African population are innovating without adequate protection.

Ms Thamaray Govender (Technology Innovation Agency)

TIA recently launched the GIP, in which TIA is the implementing organisation on behalf of the DSI. The current IP systems in South Africa do not necessarily work for grassroots innovation, and there are many problems with the current IP framework. The South African National Development Plan (NDP) calls for greater emphasis on innovation, pursuit of the knowledge economy, and better exploitation of innovation. IP is thus said to be an important instrument in promoting innovation, technology transfer, R&D, creative expressions from the community, and therefore industrial development and economic growth. South Africa is trying to transition towards a knowledge-based economy, away from reliance on natural resources. South Africa is moving towards a framework of a coherent IP policy that aims to achieve this objective. Government therefore plans to move towards an IP policy that promotes a coordinated approach to IP that is mindful of the South African Constitution and the rights of various sectors of South Africa's people. The goals of the comprehensive IP policy include, among others, consideration and improving how IP supports small institutions and vulnerable individuals in society; and nurturing and promoting a culture of innovation by enabling creators and inventors to reach their full potential and contribute towards industry. Grassroots innovation may involve innovators whose innovations may be culturally based, or needs based in the community. Their creativity may be a driver of economic growth and development, even though the innovation may represent informal sector innovations that provide solutions for everyday problems. These innovations may have low lev-

els of novelty and inventiveness for the standard options of patenting. Therefore, it is important to focus the IP system on appropriate levels of protection and IP rights for grassroots innovators. An example of how South Africa is moving forward is the utility patent model. South Africa has considered introducing key reforms for the promotion of IP rights, such as the implementation of utility models to support the registration of patents by small business and historically disadvantaged individuals who operate in the informal sector. The utility model, or petty patent, will differ slightly from the ordinary patent and have a shorter term, and perhaps less stringent patentability requirements. In some countries, petty patents or utility models are granted without being substantively examined.

South Africa needs a balanced approach to IP that provides effective protection of IP rights in the growing unique developmental dynamic in the country.

Ms Lungelwa Kula (National Intellectual Property Management Office (NIPMO))

NIPMO is responsible for implementing the Intellectual Property Rights from Publicly Financed Research and Development Act (*No 51 of 2008*) which provides for intellectual property emanating from publicly financed research and development to be identified, protected, utilised and commercialised. The legislation states that preferential access should be provided to small, medium and micro enterprises (SMMEs) and Broad-Based Black Economic Empowerment (BBBEE) entities when commercialising intellectual property. The IPR Act would apply to grassroots innovation for which TIA provides financial support (since that would constitute publicly funded R&D) if the R&D is not funded on a full-cost basis.

There are various measures for incentivising the IP creator, for example, in terms of the IPR Act the IP creator is entitled to at least 30% of the first million (gross) accrued from commercialisation of the piece of IP, thereafter 20% of the net revenue. NIPMO is currently under review and the outcome of the review may inform the amendments of the legislation. The DSI White Paper on Science, Technology and Innovation indicates the need for more inclusion of grassroots innovation, specifically permitting access of publicly financed research IP to grassroots innovators. If that were to happen, the IPR Act would also apply as the IP would be generated from public funds. The White Paper envisages the need for industry, science councils and higher education institutions to work together for local innovation, focusing particularly on grassroots innovation. The IPR Act may also apply where science councils and higher education institutions work together.

Mr Mehluli Ncube (Companies and Intellectual Property Commission (CIPC))

Grassroots innovation relates to addressing social needs in society. Patents by comparison exclude people. Grassroots innovation and patents should not be considered in the same context. SMMEs and corporates are charged differently when applying for a patent. The reduced tariff for SMMEs provides some support, but there are still many gaps. Patent applications cannot be lodged directly by the applicant but have to go through a patent attorney, who drafts the specifications and makes the submission on behalf of the applicant. It is not fair to treat grassroots people the same way as corporates are treated, as grassroots innovators would not be able to afford a patent attorney.

Discussion: Questions/Comments

(Comment) Mr Nkateko Khoza (Leza Private Equity):
Leza Private Equity invests in early start-ups and has experienced challenges, because the IPR Act is problematic for grassroots innovators, especially those who engage with higher education institutions (HEIs) because any knowledge that they bring into that environment becomes the IP of the HEI. The grassroots innovator is only entitled to 20% of the first R1 million and 30% thereafter. The HEI does not necessarily assist with the commercialisation of the idea. This stifles innovation at grassroots level, particularly for young people who do not have capital to invest or own property that could serve as collateral. Young people have become reluctant to submit their ideas to a development finance institution, because these institutions sometimes pass their ideas on to a third party. There is a need for policy amendment in relation to IPR in order to change the remuneration structure for content creators from commercialising their ideas. Universities tend to hoard good ideas and not commercialise them, and are only now establishing innovation units to commercialise the IP they are holding.

(Response) Ms Lungelwa Kula (NIPMO):
Thirty per cent is applicable to IP creators within the institution. If an external party bring knowledge into the institution, there is the possibility of co-ownership of the IP provided that the four requirements of the IPR Act are met, namely:
1. The must be joint contribution of resources by all respective parties.
2. New IP must be created.
3. There has to be an agreement in place on how the IP creator will be incentivised.

4. There also has to be an agreement in place on how the IP will be commercialised.

(Response) Rosemary Wolson (CSIR):
The IPR Act binds publicly funded research organisations and is implemented through the contractual relationship between the organisation, and the collaborators and funders involved in the research. Large companies that are IP savvy often also take a long time to finalise agreements due to conditions in the Act, as well as other regulatory controls, both internal (e.g. procurement) and external. With grassroots innovators who are not used to dealing with contracts, it becomes even more difficult to unpack the specificities and reach an agreement that is satisfactory in delivering mutual benefit to all parties, as well as meeting the regulatory requirements. A more collective approach might be required to assist in meeting the requirements of the IPR Act and other legislation and regulations (e.g. providing *pro bono* legal support with respect to whether the invention is capable of formal protection, and whether that is the best approach; drawing up the contract; and later with appropriate dispute resolution forums). Communication is important, and it takes a long time to build trust. Trust has to be actively cultivated and nurtured.

(Question) Dr Anitha Ramsuran (TIA):
To NIPMO: Can you give clarity on TIA's role with respect to grassroots innovation. TIA does not take the IP, unlike universities that have an IP-sharing model?

(Response) Ms Lungelwa Kula (NIPMO):
In terms of the IPR Act, TIA is a funding agency. If a recipient that receives funds from a funding agency to conduct R&D, the IPR Act will apply. If a grassroots innovator uses public funding from TIA and conducts R&D and develop IP, the IPR Act may apply provided that the R&D is not funded on a full-cost basis.

(Question) Dr Anitha Ramsuran (TIA):
Could more information be provided on the utility model?

(Response) Prof Malebakeng Forere (Wits):
- Will medicines be included in utility models? Many parties that provide for utility models exclude pharmaceuticals.
- I agree with the comment that patents and grassroots innovation should not be considered in the same context. However, grassroots innovators sometimes become greedy and want to make a lot of money without being subjected to the stringent laws with which conventional innovators have to comply. If grassroots innovators want the

same kind of protection that conventional innovators enjoy, they will have to be subjected to the same stringent requirements. This is problematic, because grassroots innovators often fail to meet the criteria for patentability.

(Response) Mr Mehluli Ncube (CIPC):
South Africa does not have a utility model but could perhaps look to other countries, for example, for the successful application of such models. In the case of patents, there are stringent requirements for patentability. The innovation must be new, but also inventive, which is always clear-cut as it relates to how obvious the idea is. By contrast, most jurisdictions are lax with respect to inventiveness and grant a utility model to an innovation as long as it is new.

(Response) Ms Thamaray Govender (TIA):
In most countries that have a utility model, the utility model may not be examined, but they do have the requirement for novelty. There is thus still the novelty hurdle to overcome. In some countries, utility models are only awarded for certain subject matter. A utility model may not be appropriate for all subject matter. Grassroots innovators do not conduct big research, patenting not appropriate in the grassroots sphere, so we need to look forward to government's new policy changes that hopefully will be implemented soon, and may possibly employ utility models. We also need to look at commercialisation success stories. Perhaps not everything needs to be protected, and possibly it is more important to support grassroots innovators to achieve commercial success.

(Comment) Dr Paul Plantinga (Human Sciences Research Council (HSRC)):
There is a need to shift attention from pre-commercial IP protection activities and focus more on the bilateral interactions between small innovators and corporate clients, who hands them a contract with clauses that specify how the IP will be dealt with. This seems to be where the issues arise in preventing the innovator from using the IP developed as part of the contract potential with any other clients, which limits the potential to sell the product or service. More could also be done with respect to social innovation and governance models in communities. The work on the technology commons could be nuanced to address some of these needs.

(Response) Ms Thamaray Govender (TIA):
Government does not put in place policies on contractual relationships. This would be the wrong message. A contractual relationship is entered into between the grassroots innovator and a corporate entity.

(Comment) Mr Rendani Mamphiswana (UJ):
When a patent is acquired, there is a process of transforming tacit knowledge into codified knowledge, which becomes publicly available. Perhaps the approach to grassroots innovation should not be to protect their work but to ensure that their products have access to a particular market, along similar lines to the BBBEE policy.

(Response) Ms Thamaray Govender (TIA):
This approach might be appropriate in some instances. Perhaps not all innovation needs to be protected by rigid IPR. The objective with grassroots innovation is for benefit to accrue to the innovator and the community. The South African government is moving towards to change legislation and policies and considering both ends of the IP spectrum. The advanced research done by big pharmaceutical companies, for example, is very different from grassroots innovation. Patents may be very suitable for commercial pharmaceutical products at one end of the innovation spectrum; at the other end of the spectrum, grassroots innovations may not meet the prerequisites for patenting, namely novelty and inventiveness, and other solutions need to be considered. Government is working on a proposed two-tier patenting system, which might include the introduction of utility models.

(Comment) Ms Charleen Duncan (Director, Centre for Entrepreneurship and Innovation, University of the Western Cape):
When we consider the innovation pipeline, we need to consider the role that entrepreneurship plays: how to develop an entrepreneurial mindset especially in historically disadvantaged institutions (HDIs); how to raise awareness in universities so as to produce job creators rather than job seekers, who think in terms of commercialisation and technology transfer. The lessons from the Honey Bee Network in this regard were involving likeminded people, people-to-people learning and training, and the notion of scouting. Students from HDIs tend to struggle with access to finance and taking their products to market. From a broader stakeholder engagement perspective, there is a need to revisit the way in which banks, agencies and venture capitalists provide funding. In order to have an impact, it is necessary to address all the areas of the triple helix.

(Comment) Mr Mashudu Netshiswinzhe (the dti):
The IPR Act could be stifling innovation by grassroots innovators, since they do not want their innovation to be owned by the State, but if they approach a university to assist with development or protection of the IP, the IP is owned by the university. SMMEs need support to protect and develop their IP.

(Response) Ms Lungelwa Kula (NIPMO):
In reply to the comment that some innovators are reluctant to take their innovation to a university for support because the IP will then be owned by the higher education institution, it should be noted that there are several options with respect to ownership in terms of the IPR Act. In the full-cost model, the innovator pays all the direct and indirect costs and the IPR Act does thus not apply to the innovation. In such cases, the innovator can negotiate contractually with the institution with respect to the ownership of the IP. Theses and dissertations are excluded from the IPR Act.

(Comment) Prof Malebakeng Forere (Wits):
There are two opposing objectives with respect to publicly funded IP. On the one hand, the State wants to make knowledge available as far as possible; on the other hand, there is the person who receives State funding and wants to benefit from his innovation. The IPR Act is problematic and does not work in practice for two reasons. In terms of the Copyright Act, if a person creates something in the course of their employment, the ownership of the IP goes to the employer, and the author will never be the owner. Ownership and authorship are different. The author has only moral rights to the creation, but the copyright holder has the economic rights. The IPR Act and the Copyright Act are thus in conflict and have not been harmonised. In terms of the IPR Act, universities own all IP emanating from students or staff, yet in terms of the Copyright Act, the copyright is transferred to the publisher upon publication, so the university does not own the copyright of any work published by a third party. In considering how the Copyright Amendment Bill would impact on other legislation, the issue of ownership in relation to the IPR Act was raised.

(Response) Mr Mehluli Ncube (CIPC):
Not every invention may need to be patented. There are many different ways of protecting IP other than patenting. Trade secrets, for example, are successful but are often overlooked as a form of IP protection. Some patents cannot be marketed even though they are capable of patenting, resulting in wasted expenses on patenting. The DSI should engage with the Department of Basic Education in order to make people aware of the mechanisms that communities can use. In Japan, for example, children are taught about IP during primary education.

(Response) Rosemary Wolson (CSIR):
There is a potential area of overlap between grassroots innovation and the use of this knowledge in high-tech innovation at a research institution. If a patent were to evolve from the work, the issue would arise as to who is entitled to be considered the inventor on the patent. The pat-

ent legislation sets out strict requires for what qualifies. In some cases, the knowledge holder may have made a contribution that qualifies as inventorship in patent law, but not in other cases. When a patent application is filed, there are disclosure of origin requirements, and benefit-sharing has to be in place to ensure that the knowledge holder is compensated. In practices, this is often an area of conflict. It is important to communicate the knowledge frameworks and establish trust with the knowledge holder who has shared the knowledge and might feel they have been left out due to questions of law.

If materials are developed with funding and other organisations use them, two issues arise: (1) to the extent that the materials give a competitive advantage (e.g. in raising funds for the business of the organisation), it is important to keep control so that it does not fall into other hands. If not, there may be a case for making it broadly available, for example, under a creative commons licence.

(Comment) Mr Bernd Oellermann (the dti):
If you commercialise an innovation, it is most likely to be copied. People scour the world looking for ideas to copy and commercialise at home. If you have no patent or protection, you have no recourse if that happens. What should a knowledge creator do if they do not patent, and what kind of protection is available. The rest of the world operates according to IP protection, such as patents and trademarks.

Information about IP protection is readily accessible on the Internet via search engines. If people in remote areas do not have access to Internet, the government has failed them.

(Response) Ms Thamaray Govender (TIA):
There is information available on the Internet (e.g. the CIPC website has information on how to register a company, and brief information on patenting, designs, trademarks and copyrights), but the more important issue to educate the public, including grassroots innovators. Most people have access to the Internet, but need to be made aware of where to find information on IP. This needs to be addressed so as not to lose innovators to other countries.

(Comment) Prof Malebakeng Forere (Wits):
IP is related to grassroots innovation; for example, pharmaceuticals are the direct beneficiaries of grassroots innovation. Countries such as India and China that have thrived in producing commercial medicines that originated from grassroots people.

(Comment) Dr Paul Plantinga (HSRC):

- I was not suggesting that there needs to be government policy on contractual relationships, but that we need to equip emerging entrepreneurs to understand the contracts they enter into.
- What does the utility model offer that the design registration model currently does not?

(Comment) Mr Mahesh Patel (NIF, India):

- HBN is not acting as an IP office but an innovation supporting agency. Promoting grassroots innovation does not only include IPR, which is just one of the tools. One of the innovations that HBN supported was a natural water cooler. It was based on the well-known concept of evaporation, but did not qualify initially for support from the Technopreneur Promotion Programme of DST, India due to lack of patent protection which was one of the mandatory criteria. With HBN support, the water cooler was developed into a commercially viable product and more than 2 000 units have been sold to the market.
- Mechanisms have to be developed to support grassroots innovation. The mechanisms established by HBN for that purpose included the technology commons, technology acquisition fund and micro venture innovation fund. These mechanisms have a more important role in supporting grassroots innovation than IPR protection does.
- We need to build case studies of successful innovation, which will encourage more grassroots innovators to come forward to share their knowledge.

(Response) Rosemary Wolson (CSIR):

- Ownership is an issue. The IPR Act removes some of the discretion from organisations to enter into different arrangements with different parties. This can generally be managed, but it could delay the finalisation of contracts and raise transaction costs. Certain arrangements need NIPMO approval. Frustration may be experienced in trying to comply with the Act. It is hoped that the restrictive requirements will be revisited in the amendment.
- With respect to socially responsible licensing models, the Act provides for preferences for licensing to SMMEs and BBBEE companies, but such preference might not be sufficiently strong. Socially responsible licensing makes technology available in ways that benefit targeted constituencies, particularly in the area of medicines. This might involve different pricing models by territory, by public or private sector, or disease area, or making agricultural innovations available free or at low cost to small-scale farmers while charging commercial rates to commercial farmers.

- Royalty-free licences require NIPMO approval. Research organisations generally enjoy working with grassroots innovators and would not necessarily expect financial returns, but then the process of royalty-free licensing is more difficult.
- The technology commons has been neglected in the South African innovation space in terms of active efforts to set up IP pools and more open access models for accessing technology developed with public funding. These kinds of models deserve special attention.

(Comment) Mr Mehluli Ncube (CIPC):
The utility model is in the pipeline, but there is no certainty over how it will be drafted. Two forms of design, namely an aesthetic and a functional design, can be registered with the IP office. A functional design is similar to a utility model. A functional design protects the shape, pattern and configuration for what the design is meant to do. IP is cheaper to protect as a design than under a patent. To meet the design criteria, the innovation has to be originally new and not commonplace in the world.

There are bottlenecks in the system for grassroots innovators. They cannot go directly to the registration office but need to go via a patent attorney, which poses a considerable price barrier. In the previous Act (prior to 1987), patent agents could be used to do the registration at a more reasonable fee than a patent attorney. Perhaps patent agents could be reintroduced when the Patent Act is reviewed and amended in order to reduce bottlenecks for grassroots innovators.

(Response) Rosemary Wolson (CSIR):
Perhaps CIPC could employ a patent attorney to assist grassroots innovators.

(Comment) Mr Philemon Malinga (Hearts of Compassion):
In the interests of sustainability, an innovator should be able to continue to raise funds from the IP developed with government funding.

(Comment) Mr Parthy Chetty (Expo for Young Scientists):
The Expo for Young Scientists has been running for 39 years. South Africa has lost patents to the USA from school learners that were unaware of the processes of IP protection (e.g. a patent was filed by the US Dental Association based on an idea developed by a school learner in Ladysmith). Many South African learners are offered scholarships to study in the USA based on their school projects, and are usually lost to South Africa. In order to make a difference for sustainable development at grassroots level, it is important to interact at grassroots level and with other

grassroots organisations, including those in other countries. What is the position of TIA and the National Research Foundation (NRF) in relation to IP issues? Innovation is necessary right from school level. The Expo for Young Scientists would like to engage with many of the organisations represented at this seminar to find ways of closing the gaps.

(Question) Dr Dharmarai Naicker (CSIR):

- How are the IPR Act and other IP protection legislation in South Africa impacted by the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation to the Convention on Biological Diversity?
- If we work in the region and use another country's indigenous knowledge and valorise it through South African knowledge, where does the IP ownership reside in relation to the Southern African Development Community (SADC)?

(Question) Mr Rendani Mamphiswana (UJ):

- We need to encourage South African universities to poach students from other countries and attract them to South Africa for knowledge transfer.
- The discussion has dealt with issues of IP registration, but what happens if someone infringes your IP? Do you have to pay to defend it?

(Response) Ms Thamaray Govender (TIA):

It is very expense to defend a patent infringement. The Patent Act is due for review and the patent system is expected to change as a result. Currently, one has to go to court and engage in litigation to challenge a patent infringement. The anticipated changes include substantive examination to prevent cases from going as far as court, because patents will be substantively examined with respect to their novelty and inventiveness.

(Response) Ms Lungelwa Kula (NIPMO):

DSI (Science Promotion) and NIPMO are collaborating in a programme called IP4Teachers which started in September 2018 and we have conducted IP awareness sessions in Mpumalanga and Limpopo. The programme works together with teachers from grade 4 to educate them on IP, so that they can translate the message for their learners.

(Response) Mr Mehluli Ncube (CIPC):

- Information is worthless until it becomes knowledge.
- CIPC's role is as a regulator. There are IP offices in other countries such as China and Japan that assist innovators to register patents. This is a possible future role for the CIPC.

- CIPC has an inventor assistance programme to assist inventors from grassroots level. Following examination, CICP provides a *pro bono* patent attorney for innovations that meet the stringent patent requirements.
- The risk of patent infringement will be reduced by the introduction of substantive examination and the possibility of opposition before a patent is granted. These measures would have to be included in legislation and policy if they are to have any authority.

(Comment) Ms Meshendri Padayachy (the dti):
I am responsible for indigenous knowledge and intellectual property at the dti. The dti is preparing its negotiations for the World Intellectual Property Organisation meeting in June 2019. Indigenous knowledge is cross-cutting and relates to several pieces of legislation. The Patents Act has already been amended. Other relevant legislation with respect to protecting IP related to biodiversity includes the Intellectual Property Laws Amendment Act (*No 28 of 2013)* and the National Environmental Management: Biodiversity (*No 10 of 2004*). The dti is looking at making disclosure of the knowledge of indigenous communities mandatory, and obtaining prior informed consent from communities to use the knowledge, as well as access to benefit sharing. These measures are in line with the Nagoya Protocol to which South Africa is a signatory and are aimed at rectifying the historical context and addressing cross-border issues with neighbouring countries.

(Response) Rosemary Wolson (CSIR):
Mandatory disclosure is already part of the law and has to be filled in with every patent application.

Mr Maphosa invited the panel members to recommend policy changes or new policies to address the identified gaps.

Ms Rosemary Wolson (CSIR):
- I would like to call for enabling policy as far as possible and avoid being too prescriptive, as this could have unforeseen consequences that might work against the objectives of the policy.
- The importance of trusted communication must be emphasised in dealing with stakeholders from different backgrounds. We need more active interventions to address this as it does not always come naturally.

Ms Thamaray Govender (TIA):
- We have talked about changes we would like to see in the IP legislation, including the Indigenous Knowledge Bill and the Patents Act (for

example, the introduction of the two-tier system) but more detail is required on how any legislative changes will be implemented.
- The public found the IPR Act too prescriptive in certain areas. We need more practical implementation of the legislation. We look forward to the new cohesive IP policy system.

Ms Lungelwa Kula (NIPMO):
Issues of implementation of the IP legislation and policies are important, and the way in which the public and the implementers will be involved.

Mr Mehluli Ncube (CIPC):
- Most stakeholders with an interest in grassroots innovation are represented at this symposium, and these are the people who can influence policy formulation. We need to participate in public engagement and opportunities to comment on legislative and policy review.
- In our respective fields, we need to educate the public about IP protection in order to take grassroots development forward and help grassroots innovators to grow.

SESSION 3: CASE STUDIES

Dr Tebogo Mabotha (ASSAf) introduced the session, which provided an opportunity to listen to the stories of innovators, hear about their opportunities and difficulties that they experienced, and what they would like to see in the future.

Ms Sandiswa Qayi, Managing Director, AET Africa (East London)

AET Africa is an innovator and manufacturer of energy-efficient products. The main focus is on saving the costs of electricity with water heating and being less affected by loadshedding. The idea for the product started in 2013 with informal research by a small team in Stutterheim.

The launch of the East London Industrial Development Zone's (ELIDZ) Science and Technology Park by the Minister of Science and Technology provided an opportunity to take the initiative further. The testing of the first prototype took place. The team was able to network with other partners at ELIDZ and work with engineers and other technical people to develop the proof of concept. Funding was needed but it was clear that there would not be a single funder for the entire process. The path from concept development to commercialisation is not linear.

AET Africa met with the Innovation Hub (Climate Innovation Centre) and received funding to produce the first proof of concept. They also

made contact with the TIA Grassroots Innovation Programme, which assisted with tooling in order to develop a functional prototype. They then applied to the TIA Global Cleantech Innovation Programme and went through the intensive business accelerator programme. It was also possible to leverage some funding from the Technology Localisation Implementation Unit at the DSI.

There were things they did not think through when they started. One of these was related to the material they were using to manufacture the product. The six-month delay proved to be a blessing in disguise, because using the wrong material would have negatively affected the end use. The team used funding from the co-funders to research the material strength and health and safety issues, working with several universities. They needed a lot of support, and found business and technical mentors. Without collaboration from the different stakeholders and funders, the company would not have achieved the success that they have.

One of the key things for an innovator in order to commercialise the product is to mobilise resources and coordinate different stakeholders that will assist at the various stages of development. They were successful in building these relationships. Success in a competition generated considerable publicity. The media coverage assisted in leveraging funds from the Industrial Development Corporation (IDC), which approached them. The IDC visited the factory, conducted due diligence and released funding within three months. The factory was launched on 18 October 2018, and the product is being sold.

There is still much work to be done to enhance market access. Packaging has to be designed. Before the IDC funding was awarded, R1.8 m had already been spent in product development. There are also in-kind contributions of the innovators' time. There are competitors to be taken into account, and IP issues to address, which requires the cost of attorneys. When they started out, they did not think of developing a fully fledged IP strategy, but learnt along the way which areas had to be privatised. It would not have been possible to succeed as a grassroots innovation alone and without the support of stakeholders. There are still challenges to be overcome, and the process has not been easy. We need to become ambassadors and change the lives of communities, who have many ideas that could be developed but are frustrated as they do not know how to access support platforms. Innovation requires constant R&D to keep improving the product.

Ms Nathacia Olivier, Founder: Indoni Beauty Range

Indoni is a skin and haircare range. 'Indoni' is a Zulu word that means 'being beautiful by nature'. The products are manufactured from food compounds, edible oils and essential oils with heading properties. The products contain no alcohol, preservatives or artificial colourants.

Ms Olivier started with an idea, without knowledge or understanding of the process of innovation, trying to develop soothing products to heal her own skin condition and share these with other people. She entered a competition at the Tshwane University of Technology. She won the second round and as a result was introduced to the Innovation Hub, which assisted. They got publicity on radio, television and media platforms. The concept was entered into the Innovation Hub's Gauteng Accelerator Township Economy competition. The prize money assisted with prototyping of the products. The product had to be branded and sold in attractive packaging. Older women are mostly employed as distributors and sales representatives in communities, and 32 women form part of the Indoni team. The journey has not been easy. The product range includes body butter, body sugar scrub, curling butter, hair oil and shampoos. Ms Olivier also had to learn design skills to design the logo and packaging.

Lack of information is a challenge with respect to IP and how to protect ideas. The Innovation Hub assisted with workshops on how to patent an idea and trademark the brand and logo. Two of the products were recently tested and would now be sold in the retail market.

Discussion: Questions/Comments

(Comment) Prof Malebakeng Forere (Wits):
The presentations show that IP is very important for grassroots innovation. So far you have succeeded in design. The complexity lies in patenting the formulas. I'm impressed and proud.

(Comment) Mr Bernd Oellermann (the dti):
Realise that the work does not stop. If you think you have arrived, you lose the edge. You have passion and energy, and you have to keep this up.

(Comment) Mr Mirero Makhado (NRF):
It is especially impressive that these women have succeeded despite South Africa's patriarchal past.

(Comment) Mr Nkateko Khoza (Leza Private Equity):
It is our role as young people to change the direction of the country. Entrepreneurs will be needed to reduce South Africa's high unemployment among young people. SMMEs will have to drive the growth of the country. When legislation is amended, it will be essential to ensure the SMMEs are not stifled.

(Comment) Ms Simphiwe Mntambo (TIA):
Ms Simphiwe Mntambo introduced TIA's GIP. The programme was piloted in 2016 and has now been scaled up. GIP has issued an open call to find 100 innovators who will be assisted with funding for two years to develop a prototype, and will then be supported with follow-up funding from other sources. Concepts that are submitted do not have to be novel but must have potential for social impact and require technical development. The innovators will be incubated by TIA's 22 tech stations around the country that will provide technical expertise, as well as infrastructure for the development of the products. There is also a funding component that includes a stipend, as well as business mentorship (including IP support).

WAY FORWARD AND RECOMMENDATIONS

Delegates were invited to submit their thoughts and recommendations to address and find solutions for the topic of discussion. The following ideas were submitted:

Scope and urgency
1. There is a growing need to look into the informal economy, as that economy is growing each day.
2. Development and standardised definition of a grassroot innovator.
3. How the region (SADC, African Union, New Partnership for Africa's Development) grassroots innovation impacts on inclusive growth of the region and continent.

Scouting for innovation
1. Provide effective scouting mechanisms.

Education and awareness of grassroots innovation
1. In considering grassroots innovation, there is need to create awareness of innovation within the informal context.
2. Improve the scope of education towards grassroots innovation.
3. More awareness and education are required at all levels of society, e.g. communities, schools, university, business, etc.

4. There is need to develop information campaigns from the different stakeholders present to educate the masses, as these are the target beneficiaries and getting information to these communities is poor, more especially due to poor Internet connectivity.
5. Take the information to the grassroots level to make impact.
6. Grassroots innovators should be made more aware of the processes, policies, etc.
7. Roadshows/awareness workshops at all levels.
8. Public awareness and education.

Involvement of government departments and agencies

1. Include the dti in the conversation as they are the custodian of IP.
2. Better collaboration between the different stakeholders such as DBE, DHET, the dti, DSI, etc.
3. NIPMO, CIPC, the dti, DSI, TIA, etc. should collaborate more effectively.
4. Involve the youth agencies such as the National Young Academy (NYA) in the dialogues.
5. Better coordination of funders/players in the space.

Tensions involved

1. Take into account tensions between the protection of intellectual property and the potential for exclusion and creation of monopolisation with respect to grassroots knowledge.

Policy and legislative review

1. Policies need to be strengthened and implementation frameworks need to be vastly improved.
2. The policymakers and other stakeholders need to interact and draw information from innovators and put policies and programmes in place based on informed information. Reach out to communities and hear their side of the story.
3. Policy changes also need to be workshopped across all stakeholders and potential innovators.
4. Drafting and submissions of inputs to the upcoming IP legislation debates, as individuals and collectively.
5. Improve cohesion between the different laws and policies.
6. IP Act must be reviewed to allow grassroots IP commercialisation.
7. Better IP regime for grassroots innovators, in reference to the utility model.

Alignment and collaboration

1. Closer collaboration between research organisation and grassroots innovators.
2. Better coordination of funders/players in the space.

3. Systems and process need to be better aligned and streamlined within and across different stakeholders, particularly within the public sector. For example, NIPMO, CIPC, the dti, DSI, TIA, etc. should collaborate more effectively in creating awareness on IP issues, as well as funding and technical support available to upcoming innovators.

Youth
1. Policymakers to be mindful of young innovators when drafting policies.
2. Involve the youth agencies such as NYA in the dialogues.

Funding
1. Funding for grassroots innovators.
2. Funding to assist research and commercialisation.
3. Funding for organisations working in poor communities.
4. Information of funders of grassroots innovation should be easily accessible.

Support
1. Provide a one-stop shop.
2. Offer training on IP processes to grassroots innovators.
3. Assist informal businesses in identifying their inventions.
4. Full support in terms of IP process.
5. Grassroots innovation can only prosper if young people are provided with the necessary support and by ensuring the IP processes are less laborious to facilitate the commercialisation of their innovations.
6. Awareness, knowledge sharing and education for knowledge holder.
7. There is a need for education, training and mentoring.
8. Information should be made available in remote areas, particularly areas with no access to the Internet.
9. Provide mechanisms to protect innovators from liabilities/litigation from IP infringements.
10. Broaden the scope of mechanisms and solutions to support grassroots innovators.
11. Make information more accessible and user-friendly.

Language
1. Provide resources and solutions in a language that innovators understand.
2. Simplify the processes and policies, for example, consider language barriers, technical jargon, etc.

Education
1. IP should be part of the school curriculum.
2. Engage with universities as a sector, i.e. curriculum.
3. Introduce R&D at school level.

Policy implementation

1. Policies need to be strengthened and implementation frameworks need to be vastly improved.
2. A more bottom-up approach in relation to the implementation of already existing policies, particularly the intellectual property policy.
3. Have forums and structures on provincial levels that will assist in cascading information to the grassroots level.

Advocacy and engagement

1. Advocacy, training and development of grassroots innovators.
2. Stakeholder forums need to be established to ensure that grassroots innovation is promoted and protected.
3. Advocacy and communications from ASSAf and the DSI to allow participation from all relevant stakeholders, particularly innovators and their communities.
4. A sustained interaction between DSI and ASSAf to create a platform, especially in rural areas where information regarding IP can be thoroughly disseminated.
5. Provide a platform for more engagements with innovators at the grassroots level.
6. South Africa should consider poaching of students or entrepreneurs like other countries.
7. There is a need to develop protection strategies and advocacy for communities and involve them in policy formulation related to grassroots innovation.

Research

1. Conduct research on how government can implement policies in a most effective manner that will assist and attract innovators from grassroots level.
2. Deeper diagnosis of IP challenges that most innovators and entrepreneurs are facing, beyond patenting.
3. Conduct more research and collect statistics to indicate reasons why some areas have been successful and why others have failed.

Future IID seminars

1. Host another seminar that will go beyond IP protection and cover manufacturing, commercialisation, etc.
2. Organise seminars like the IID seminar series on a regular basis,

(Remarks) Mr Mahesh Patel (NIF, India):

If you want to promote grassroots innovation, then consider grassroots innovators on the top of the pyramid not at the bottom.

(Remarks) Prof Malebakeng Forere (Wits):
In future consider inviting a presentation from the dti, which is responsible for IP legislation. Grassroots innovation does not end with IP protection. It is also necessary to focus on innovation standards (perhaps as the topic of another innovation series), without which people will not purchase a product.

CLOSING REMARKS

Ms Nonhlanhla Mkhize, Chief Director: Innovation for Inclusive Development, DSI

The National Development Plan urges South Africans to work together for development 'by drawing on the energies of its people, growing an inclusive economy, building capabilities, enhancing the capacity of the State, and promoting leadership and partnerships throughout society'.

This seminar is part of the IID series. One of the take-home messages of the seminar is that supporting grassroots innovation is not simple but complex and requires partnerships. Government and its agencies cannot do this alone. The private sector, education sector, NGOs and others must also become involved, as well as the innovators themselves.

This discussion is not about soft issues but an economic discussion. Grassroots innovators are not destined to end at that level. They have to transition, become employers and contribute to local economic development, otherwise the investment in their development cannot be justified.

The DSI is working together with the dti on the Grassroots Innovation Programme. This is work in progress, and there is still room for improvement, which is why the DSI is committed to the IID engagements. TIA will be going to the local level to meet innovators and engage with provincial partners to share information and learn from one another. This is seminar series is just one of the elements of the Grassroots Innovation Programme package. The focus is on benefits accruing to the innovator.

The White Paper on Science, Technology and Innovation has a policy intent for grassroots innovation, which requires that the system is responsive, inclusive and supports all forms of innovation. We seek a vibrant, responsive, effective grassroots innovation programme for the country.

APPENDIX 1: LIST OF ATTENDEES

Title	Name	Surname	Institution/Company
Dr	Odilile	Ayodele	University of Johannesburg (UJ)
Mr	Ashley	Bhugwandin	CSIR
Ms	Dina	Biagio	Spoor & Fisher
Dr	Siyavuya	Bulani	Academy of Science of South Africa (ASSAf)
Ms	Thato	Chabeli	South African Bureau of Standards (SABS)
Mr	Parthy	Chetty	Expo for Young Scientists
Mr	Qhubokuhle	Dlamini	University of KwaZulu-Natal (UKZN)
Ms	Charleen	Duncan	University of the Western Cape (UWC)
Prof	Malebakeng	Forere	University of the Witwatersrand (Wits)
Ms	Thamaray	Govender	Technology Innovation Agency (TIA)
Mr	Siyanda	Jonas	Kagiso Trust
Mr	Dominic	Kgaabi	National Research Foundation (NRF)
Ms	Pelonomi	Kgagodi	Human Sciences Research Council (HSRC)
Mr	Nkateko	Khoza	Leza Private Equity
Dr	Leti	Kleyn	ASSAf
Mr	Maruping	Kodisang	Department of Planning, Monitoring and Evaluation (DPME)
Ms	Lungelwa	Kula	National Intellectual Property Management Office (NIPMO)
Ms	Mapule	Letshweni	South African Local Government Association (SALGA)
Dr	Tebogo	Mabotha	ASSAf
Ms	Xolisa	Magawana	HSRC
Ms	Promise	Mahlangu	National School of Government
Mr	Philemon	Malinga	Hearts Of Compassion
Mr	Rendani	Mamphiswana	UJ & Sasol
Ms	Linah	Maphanga	Innovative247
Prof	Regina	Maphanga	CSIR
Mr	Stanley	Maphosa	ASSAf
Mr	Xolani	Masemula	UKZN
Mr	Kholani	Mbhiza	TWAS Sub-Saharan Africa Regional Partner (TWAS-SAREP)
Ms	Nonhlanhla	Mkhize	Department of Science and Innovation (DSI)
Ms	Simphiwe	Mntambo	TIA

APPENDIX 1: LIST OF ATTENDEES

Title	Name	Surname	Institution/Company
Mr	Chris	Mocks	Edbook media
Ms	Mosibudi	Mokoele	Department of Trade and Industry (the dti)
Ms	Thato	Morokong	ASSAf
Ms	Nomsa	Motsoene	the dti
Dr	Dharmarai	Naicker	CSIR
Mr	Mehluli	Ncube	Companies and Intellectual Property Commission (CIPC)
Ms	Zama	Ndlovu	Leza Private Equity
Ms	Siphumelele	Nene	Leza Private Equity
Mr	Mashudu	Netshiswinzhe	the dti
Mr	Leonard	Nkuna	DPME
Ms	Nathacia	Olivier	Indoni Beauty Range
Ms	Meshendri	Padayachy	the dti
Mr	Manesh	Patel	National Innovation Foundation (NIF)- India
Mr	Ephraim	Phalafala	DSI
Ms	Mandy-Lee	Pietersen	UJ
Ms	Sekgethelo	Pilane	Bakgatla-Ba-Kgafela Development and Wellfare(BBKDW)
Dr	Paul	Plantinga	HSRC
Ms	Sandiswa	Qayi	AET AFRICA
Ms	Nosipho	Qwabe	TuksNovation
Ms	Sibongile	Radebe	TIA
Dr	Anitha	Ramsuran	TIA
Ms	Takalani	Ramuthaga	the dti
Mr	Ashaal	Roopchan	TIA
Ms	Phitlhello	Sejwane	Edbook media
Mr	Nkululeko	Shabalala	UKZN
Mr	Ameeth	Singh	Land Bank
Mr	Sarel	van der Walt	TIA
Ms	Renate	Venier	ASSAf
Ms	Cornia	Vosloo	Agricultural Research Coucil (ARC)

APPENDIX 1: LIST OF ATTENDEES

Title	Name	Surname	Institution/Company
Ms	Henriette	Wagener	ASSAf
Mr	Tshepiso	Wetties	Edbook media
Ms	Rosemary	Wolson	CSIR
Ms	Diana	Zhou	DPME
Ms	Bongiwe	Zwane	ASSAf
Mr	Bernd	Oellermann	the dti
Mr	Tiyani	Ngoveni	DSI
Mr	Mirero	Makhado	NRF
Mr	Thabiso		Edbook media
Ms	Robyn	Arnold	Write Connection
Ms	Tshililo	Mabirimisa	the dti
Ms	Tshepiso	Nkata	the dti
Dr	Hester	du Plessis	HSRC/ASSAf
Ms	Kamo	Debela	Edbook
Ms	Precious	Lukhele	DSI
Ms	Refiloe	Phahla	CSIR
Mr	Floyd	Masemola	ASSAf

APPENDIX 2: LIST OF ACRONYMS

ASSAf	Academy of Science of South Africa
BBBEE	Broad-Based Black Economic Empowerment
CIPC	Companies and Intellectual Property Commission
CSIR	Council for Scientific and Industrial Research, South Africa
DSI	Department of Science and Innovation
ELIDZ	East London Industrial Development Zone
GIAN	Grassroots Innovations Augmentation Network
GIP	Grassroots Innovation Programme
HBN	Honey Bee Network, India
HDI	Historically disadvantaged institutions
HEI	Higher education institution
HSRC	Human Sciences Research Council
IDC	Industrial Development Corporation
IID	Innovation for Inclusive Development
IP	Intellectual property
IPR	Intellectual property rights
NDP	National Development Plan
NGI	Non-governmental individual
NGO	Non-governmental organisation
NIF	National Innovation Foundation (India)
NIPMO	National Intellectual Property Management Office
NRF	National Research Foundation
NSI	National System of Innovation
NYA	National Young Academy
R&D	Research and development
SADC	Southern African Development Community
SMME	Small, medium or micro enterprise
SRISTI	Society for Research and Initiatives for Sustainable Technologies and Institutions
the dti	Department of Trade and Industry
TIA	Technology Innovation Agency
TK	Traditional knowledge
TLIU	Technology Localisation and Implementation Unit (CSIR)
UJ	University of Johannesburg
USA/US	United States of America
USPTO	United States Patent and Trademark Office
Wits	University of the Witwatersrand

2019

Protection of Intellectual Property for Grassroots Innovation

Academy of Science of South Africa (ASSAf)

Academy of Science of South Africa (ASSAf)

Academy of Science of South Africa (ASSAf), (2019). Protection of Intellectual Property for Grassroots Innovation. doi: 10.17159/assaf.2019/0053

http://hdl.handle.net/20.500.11911/130